Abstracts

A Tuneable, Switchable Dielectric Grating

M.D. Bushbeck and C.H. Chan. "A Tuneable, Switchable Dielectric Grating." 1993 Microwave and Guided Wave Letters 3.9 (Sep. 1993 [MGWL]): 296-298.

Electromagnetic scattering characteristics of dielectric gratings are examined numerically using the finite-element method. The gratings are created by introducing pressurized dielectric fluid into periodic tubes within a dielectric sheet. A structure is presented which has an extremely narrow stop-band (total power reflection) immediately adjacent to a pass-band (total transmission). It is shown that the critical bands can be shifted by changing the fluid pressure, at a cost of only slightly less than perfect pass-band transmission (97%), while the rejection band remains perfect (100%). Thus, a unique tuneable, switchable frequency selective surface can be easily realized.

❑ Return to main document.